

## REMARKS

Claims 1-19 and 23-26 are pending in the application. Applicants request reconsideration in view of the following Remarks.

Claims 1-19 and 23-26 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicants' Admitted Prior Art ("AAPA") in view of Yamauchi et al. (U.S. Patent No. 5,640,067) ("Yamauchi"). For an obviousness rejection to be proper, the Examiner must meet the burden of establishing that all elements of the invention are disclosed in the prior art; that the prior art relied upon, coupled with knowledge generally available in the art at the time of the invention, must contain some suggestion or incentive that would have motivated the skilled artisan to modify a reference or combined references; and that the proposed modification of the prior art must have had a reasonable expectation of success, determined from the vantage point of the skilled artisan at the time the invention was made. *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988); *In Re Wilson*, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970); *Amgen v. Chugai Pharmaceuticals Co.*, 927 U.S.P.Q.2d, 1016, 1023 (Fed. Cir. 1996).

First, AAPA and Yamauchi do not teach or suggest all of the limitations of claims 1, 8, and 13.

Claim 1 includes the following limitation: "a refractory metal layer connecting a source region or drain region of said thin film transistor to said anode of said organic electroluminescence element, said refractory metal layer, one of said source region and drain region, and said anode being laminated in a thickness direction of said substrate." Claim 8 includes the following limitation: "said contact being achieved through a refractory metal layer, said refractory metal layer, one of said source and drain, and said anode being laminated in a thickness direction of said organic electroluminescence device." Claim 13 includes the following limitation: "said first electrode region and said first electrode being laminated in a thickness direction of said light emitting device."

As Applicants previously asserted in the response to the final rejection, the claims require that the TFT and EL are laminated in the vertical direction. In response to that argument, the Examiner asserted the following:

"Examiner respectfully disagrees with applicants' argument that Yamauchi does not teach a refractory metal layer that is laminated in a thickness direction of the device substrate (new limitation). By definition, a laminated structure is composed of layers of firmly united material. Moreover, Yamauchi (e.g. fig. 1) noticeably shows a structure

composed of layers (111, 112, 114) of firmly united material. Yamauchi teaches that the refractory metal layers are formed in a thickness direction of the substrate or an light-emitting device (i.e. organic electroluminescence device). Furthermore, Yamauchi shows that the refractory metal layers (111 and 112) are formed at the source or drain electrode ends (114) to connect the transparent electrode and source or drain regions. Therefore, Yamauchi teaching suggests that the refractory layers have to be formed at the analogous contact locations of applicants' admitted prior art electrode in order to prevent the electrode of being contaminated with silicon. The analogous contact locations are the top and bottom regions of applicants' admitted prior art source or drain electrode. The adverse effects of the silicon diffusion are well known in the art. In conclusion, Yamauchi teaching is used to demonstrate that one having ordinary skill in the art at the time of the invention was made would use refractory metal layers at the electrode contact regions in order to prevent the silicon diffusion. Referring to figures 1, 3c and 3d, Yamauchi evidently shows that the refractory metal layers (111 and 112) are laminated in a substrate thickness direction, see for example the regions contacting the transparent electrode 109 and the drain region 107. Therefore, applicants' admitted prior art in view of Yamauchi teaches all the limitations of amended claims (1, 8, and 13).” See Final Office Action, dated March 25, 2002.

Applicants strongly traverse the Examiner's characterization of Yamauchi and also the conclusions regarding the obvious rejection.

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~~Claims~~ 1, 8, and 13 require that the TFT and EL are laminated in the vertical direction, and the active layer and the anode are connected via a refractory metal through a contact hole provided on the laminated interlayer insulating film 15 and the planarization insulating film 17. In other words, the source region or the drain region of the active layer and the anode are laminated in the thickness direction of the insulative substrate and connected via a refractory metal. Yamauchi does not teach or suggest that limitation. Instead, Yamauchi teaches a structure where the TFT and EL are formed on a substrate in parallel. Thus, Yamauchi and the claimed invention differ in that, in Yamauchi, the source region or the drain region of the active layer and the anode are not laminated in the thickness direction of the insulative substrate and connected via a refractory metal.

Moreover, because the Yamauchi structure is not laminated in the thickness direction, there is nothing in Yamauchi to suggest Applicants' claimed invention. While the Examiner concludes that there are analogous contact locations, Applicants assert that the Examiner reaches his conclusions because he is using the Applicants' disclosure as a road map to reject the claims.

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In addition, Claims 1 and 8 include the following limitation: **“a planarization insulating film covers said refractory metal layer**, wherein said anode is formed on said planarization insulating film, a contact hole is formed through the planarization insulating film, and **said anode partially extends to said contact hole and said anode is in contact with said refractory metal layer.”** (Emphasis supplied.) Claim 13 includes a similar limitation, as follows: **“a planarization insulating film covers said refractory metal layer**; an anode is formed on said planarization insulating film; and a contact hole is formed through the planarization insulating film, **wherein said anode partially extends to said contact hole and said anode is in contact with said refractory metal layer.”** (Emphasis supplied.)

The Examiner acknowledges that AAPA “does not show that the planarization insulating film covers the refractory metal.” Moreover, Yamauchi does not teach or suggest a planarization insulating film. However, the Examiner concludes that “[s]ince the refractory metal layer is formed in the anode-transistor contact region, the refractory metal layer had to be covered by the planarization layer.”<sup>\*</sup> Applicants strongly traverse this statement. The Examiner’s statement suggests that he is using Applicants’ own invention as a reference against Applicants. ✕

Neither AAPA nor Yamauchi teach or suggest a planarization insulating film that covers the refractory metal. While AAPA does teach a planarization insulating film, AAPA does not teach or suggest the use of a refractory metal layer. Thus, AAPA does not teach or suggest a planarization insulating film that covers a refractory metal layer. Moreover, Yamauchi does not teach or suggest a planarization insulating film and thus, does not teach or suggest a planarization insulating film that covers a refractory metal layer.

In the claimed invention, because the anode is formed on top of the planarization insulating film, the anode surface can be planarized. Because Yamauchi does not have a planarization insulating film, Yamauchi does not teach or suggest that the anode surface can be planarized. By planarizing the anode surface, voltage can be applied uniformly to the EL layer, and thus, unevenness in brightness can be prevented.

Accordingly, the combination of AAPA and Yamauchi do not teach or suggest all of the limitations of claims 1, 8, and 13.

Second, it is not obvious to combine the planarization layer in AAPA with the refractory metal layer of Yamauchi to reach Applicants’ claimed limitations. Obviousness can only be established by combining or modifying the teachings of the

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prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992); MPEP § 2143.01. There is no teaching in the cited art to combine the references in an attempt to produce the claimed invention.

~~\*\*\*~~ Even though AAPA teaches a planarization layer and Yamauchi may teach a refractory metal layer, there is no teaching between the two references that the planarization insulating film covers the refractory metal layer as claimed by Applicants. In fact, Yamauchi actually teaches away from having the planarization layer cover the refractory metal layer because the first refractory metal layer 111 and the second refractory metal layer 112 are covered by the conductive lead 114.

There is nothing in either AAPA or Yamauchi that would teach or suggest locating the refractory metal layer as claimed by Applicants. The refractory metal layer serves as a contact between the source side of the p-Si film and anode in conjunction with serving as a wiring for providing a current from the power line to the drain side of the p-Si film. The refractory metal layer could have been located so as to not have the planarization layer cover the refractory metal; however, as Applicants discovered, by locating the refractory layer as claimed by Applicants the anode surface can be planarized, and thus, unevenness in brightness can be prevented. *discussed*

Moreover, it does not make sense to combine the planarization insulating film with the structure of Yamauchi. In the structure of Yamauchi, the anode and the TFT are formed on the same surface, thereby having a completely different structure from the claimed invention. ~~\*\*\*~~ Yamauchi is insusceptible to adopting a concept that the contact hole is made on the planarization insulating film. *Replied*

AAPA, Yamauchi, and the knowledge generally available in the art at the time of the invention do not contain the suggestion or incentive that would have motivated the skilled artisan to modify a reference or combined references to reach the claimed subject matter. The motivation for the limitation of having the planarization insulating film cover the refractory metal layer comes from Applicants' disclosure. ~~\*\*\*~~

In addition, there is no motivation to combine AAPA and Yamauchi to reach the claimed limitation: "said anode partially extends to said contact hole and said anode is in contact with said refractory metal layer." The Examiner states that AAPA shows "a planarization insulating film 17, an anode formed on said planarization insulating film, a

contact hole formed through the planarization film. Also, the anode partially extends the contact hole.” However, the limitation also requires that “said anode partially extends to said contact hole and said anode is in contact with said refractory metal layer.” It is only Applicants disclosure that teaches that claimed limitation.

As explained above, Applicants maintain that the Examiner has used an improper standard in arriving at the rejection of the above claims because the Examiner has rejected the claims by using Applicants’ disclosure. In applying Section 103, the U.S. Court of Appeals for the Federal Circuit has consistently held that one must consider both the invention and the prior art “as a whole,” not from improper hindsight gained from consideration of the claimed invention. See *Interconnect Planning Corp. v. Feil*, 227 U.S.P.Q. 543, 551 (Fed. Cir. 1985) and cases cited therein. According to the *Interconnect* court

“[n]ot only must the claimed invention as a whole be evaluated, but so also must the references as a whole, so that their teachings are applied in the context of their significance to a technician at the time - a technician without our knowledge of the solution.” *Id.*

Applicants submit that when AAPA and Yamauchi are applied in context, a person skilled in the art would not arrive at Applicant’s claimed limitations.

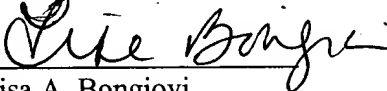
For at least the foregoing reasons, AAPA and Yamauchi fail to teach all the limitations as recited in claims 1, 8, and 13. In addition, claims 2-7, 23, and 24 include all of the limitations of claims 1, claims 9-12, 25, and 26 include all of the limitations of claim 8, and claims 14-19 include all of the limitations of claim 13. Thus, AAPA and Yamauchi fail to teach all of the limitations recited in those claims. Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection of claims 1-19 under 35 U.S.C. § 103(a).

In view of the foregoing, it is respectfully submitted that the instant application is in condition for allowance. Accordingly, it is respectfully requested that this application be allowed and a Notice of Allowance issued. If the Examiner believes that a telephone conference with Applicants’ attorneys would be advantageous to the disposition of this case, the Examiner is cordially requested to telephone the undersigned.

In the event the Commissioner of Patents and Trademarks deems additional fees to be due in connection with this application, Applicants' attorney hereby authorizes that such fee be charged to Deposit Account No. 06-1130.

Respectfully submitted,

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